

**REMARKS**

This Amendment and Response is filed in reply to the Office action dated May 16, 2007. Claims 1, 32, 40, 46 and 47 are amended and no claims are canceled. Accordingly, after entry of this Amendment and Response, claims 1-58 remain pending. This Amendment and Response is being filed contemporaneously with a petition to revive an abandoned application due to an unintentional delay.

*I. Specification*

The disclosure is objected to because it contains an embedded hyperlink in paragraph [1007]. In response, paragraph [1007] of the application is amended to remove the embedded hyperlink.

*II. Claim Rejections Under 35 U.S.C. § 101*

Claims 1-15 are rejected under 35 U.S.C. § 101 because the claimed invention is directed to non-statutory subject matter. Specifically, claim 1 is non-statutory as being "a software tool" without being supported by hardware such as tangible computer storage or execution engine and claims 2-15 are rejected for failing to cure the deficiencies of rejected claim 1. In response, claim 1 is amended to recite "A computer-implemented software tool."

Claims 32, 40, 46 and 47-54 are rejected under 35 U.S.C. § 101 because the claimed invention is directed to non-statutory subject matter. Specifically, claims 32, 40, 46 and 47 recite "machine readable media" defined to include propagated signals. Claims 48-54 are rejected for failing to cure the deficiencies of rejected claim 47. In response, claims 32, 40, 46 and 47 are amended to recite "machine readable physical storage media" as suggested by the Examiner.

The Applicants respectfully submit that the claims, as amended, are directed to statutory subject matter, in compliance with 35 U.S.C. § 101 and respectfully request such indication.

*III. Claim Rejections Under 35 U.S.C. § 102*

Claims 1-58 are rejected under 35 U.S.C. § 102(e) as being anticipated by U.S. Patent No. 7,111,290 B1 to Yates et al. (hereinafter "Yates"). A proper anticipation rejection requires that each and every limitation of a claim be disclosed in a single prior art reference.

Initially, the rejections of the independent claims 1, 16, 33, 41, 47 and 55 are addressed. The independent claims are directed toward profiling memory reference addresses encoded in instruction instances that hinder execution of the code including the instruction instances. This may be done by associating a runtime event signifying an

execution hindrance with a memory reference address. For example, an instruction instance may be a load type instruction. During profiling, the address of the operand data (address from which data is loaded when the load type instruction is executed) may be associated with the runtime event corresponding to an execution hindrance due to the load type instruction instance. That is, an effective address indicated by the instruction instance, e.g., address location of the operand data, another address, etc., is associated with the code hindrance. Further, the data address may be associated with a memory reference object, e.g., a heap variable, a stack variable, a data structure, a cache level, etc.

Yates discloses a profiling method that divides the address range occupied by a program into a number of ranges. A timer is used to randomly sample an executing instruction. When the timer goes off, the profiler determines the address of the instruction. A counter corresponding to a range of addresses including the instruction address is incremented. This allows frequently and infrequently executed regions of the program to be determined. See *Yates, column 2, lines 14-25*. Yates further discloses that the instruction address is translated from the logical address space to the physical address space of the computer. See *Yates, column 6, lines 51-59*. The physical memory addresses recorded during profiling may be addresses of the instructions referenced by an instruction pointer, the sequential execution flow across a page boundary, a divergence of control flow consequent to an interrupt, etc. See *Yates, column 7, lines 14-26*.

**A. Yates fails to anticipate the independent claims because Yates does not disclose determining at least one data address from one or more instruction instances.**

Specifically, independent claim 1 includes a limitation of determining “at least one data address from one or more instruction instances.” Independent claims 16, 33, 41, 47 and 55 each include a similar limitation. The Office action cites *Yates, column 2, lines 15-25* as disclosing this limitation. See *Office action, page 4*. The Applicants respectfully disagree that Yates discloses this limitation for at least the following reasons.

Yates discloses a profiling method that divides the address range occupied by a program into a number of ranges. When a timer goes off, the profiler determines the address of the instruction being executed and increments a counter corresponding to the address range that embraces the address of the instruction. See *Yates, column 2, lines 15-20*. That is, Yates determines the address location in memory of where the instruction is located, rather than determining at least one data address from one or more instruction instances, as required by the independent claims.

**B. Yates fails to anticipate the independent claims because Yates does not disclose identifying one or more memory reference objects, associated with the data address.**

Further, independent claim 1 recites a limitation of identifying “one or more memory reference objects, associated with the data address.” Independent claims 16, 33, 41, 47 and 55 each include a similar limitation. The Office action cites Yates, column 6, lines 51-59 and column 7, lines 15-40 as disclosing this limitation. See *Office action, page 4*. The Applicants respectfully disagree that Yates discloses this limitation for at least the following reasons.

As discussed above, Yates discloses determining the address location in memory of where the instruction is located. See *Yates, column 2, lines 15-20*. The logical address of the instruction is translated into a physical memory reference that is recorded as profile information. See *Yates, column 6, lines 51-59*. However, the recorded physical memory reference relates to the address of where the instruction is located, rather than identifying one or more memory reference objects associated with the data address as required by the independent claims. That is, Yates discloses profiling the addresses of instructions being executed, rather than profiling data reference addresses associated with the executing instruction. As such, Yates does not disclose identifying one or more memory reference objects, associated with the data address as required by the independent claims.

### **C. Conclusion**

Insofar as Yates does not disclose each and every limitation of independent claims 1, 16, 33, 41, 47 and 55, Yates is insufficient to anticipate independent claims 1, 16, 33, 41, 47 and 55, and such indication is respectfully requested. The remaining rejected claims 2-15, 17-32, 34-40, 42-46, 48-54 and 56-58 depend, either directly or indirectly, from one of independent claims 1, 16, 33, 41, 47 and 55. Accordingly, these dependent claims are themselves patentable over Yates for at least the reasons set forth above and such indication is respectfully requested. This statement is made without reference to or waiving the independent bases of patentability within each dependent claim.

### **IV. Conclusion**

The Applicants thank the Examiner for his thorough review of the application. The Applicants respectfully submit the present application, as amended, is in condition for allowance and respectfully request the issuance of a Notice of Allowability as soon as practicable.

This Amendment is submitted contemporaneously with a petition to revive an abandoned application due to an unintentional delay in accordance with 37 C.F.R. § 1.137(b). Accordingly, please charge Deposit Account No. 04-1415 in the amount of \$1540.00, for a petition to revive an abandoned application due to an unintentional delay fee. The Applicant believes no further fees or petitions are required. However, if any such

petitions or fees are necessary, please consider this a request therefor and authorization to charge Deposit Account No. 04-1415 accordingly.

If the Examiner should require any additional information or amendment, please contact the undersigned attorney.

Dated: March 25, 2003

Respectfully submitted,



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